REMARKS

The present patent application now comprises forty-eight (48) claims, numbered 1 to 15, 17 to 40, 43 to 45, 48 to 50 and 53 to 55.

Claims 4, 5, 10 to 14, 23 to 27, 35 and 36 have been previously withdrawn. Claim 16 was previously cancelled.

Claims 1, 22 and 32 have been amended. Claims 41, 42, 46, 47, 51 and 52 have been cancelled. New claims 53 to 55 have been added.

Support for amendments made can be found throughout the specification and drawings as originally filed, including, *inter alia*, page 13, lines 4 and 5; page 18, lines 7 to 17; and Figure 8B. No new matter has been added to the present patent application by the present response.

1. Substance of the Interview

A telephonic Examiner Interview was conducted on March 7, 2007 between the Examiner and the Applicants, represented by the undersigned and Mr. Sanro Zlobec (representative of the Applicants in Canada).

During the Examiner Interview, the Examiner and the Applicants discussed patentability of claim 1, which had been provided to the Examiner by way of a proposed amendment and which explicitly claims a gain medium having a superstructure grating forming a plurality of cavities where at least two of the cavities are **separated** from one another. The Applicants argued that claim 1 is patentable over U.S. Patent 6,407,855 to MacCormack *et al.* (hereinafter referred to as "MacCormack") since no two cavities of a gain medium are **separated** from one another in MacCormack. The Examiner argued that "separated" could mean "partially overlapping" in view of the present patent application and thus that claim 1 does not patentably distinguish from MacCormack. The Applicants argued that: (i) this interpretation was contrary to the plain and ordinary meaning of the word "separated', which

clearly does not mean "partially overlapping"; and (ii) nothing in the present patent application necessitates such interpretation.

2. Rejection of Claims under 35 USC 112

On page 3 of the Office Action, the Examiner rejected claims 41, 42, 46, 47, 51 and 52 under 35 USC 112, first paragraph, as failing to comply with the written description requirement. This rejection is moot in view of cancellation of claims 41, 42, 46, 47, 51 and 52.

3. Rejection of Claims under 35 USC 102

On pages 3 to 5 of the Office Action, the Examiner rejected claims 1 to 3, 15 to 19 [*sic*], 22, 28 to 31 [*sic*], 28 to 34 and 37 under 35 USC 102(b) as being anticipated by U.S. Patent 6,407,855 to MacCormack *et al.* (hereinafter referred to as "MacCormack"). The Examiner also appears to have rejected claims 38, 39, 43, 44, 48 and 49 as being anticipated by MacCormack.

As discussed below, the Applicants respectfully submit that claims 1 to 3, 15, 17 to 19, 22, 28 to 34, 37 to 39, 43, 44, 48 and 49, as amended, are in condition for allowance and respectfully request the Examiner to withdraw her rejection of these claims.

Independent claims 1, 22 and 32

Claims 1, 22 and 32 are reproduced below with certain elements being emphasized:

1. A multi-wavelength laser source comprising:
   a) an input for receiving an energy signal;
   b) a gain section in communication with said input, said gain section including a gain medium having a superstructure grating, said superstructure grating forming a plurality of cavities that are distributed in said gain medium such that different resonant wavelengths resonate in respective ones of said cavities when the energy signal is applied to said gain section, **at least two of said cavities being separated from one another**, said gain section generating a multi-wavelength laser signal when the energy signal is applied to the gain section; and
   c) an output for emitting the multi-wavelength laser signal.

22. A method suitable for generating a multi-wavelength laser signal, said method comprising:
    a) receiving an energy signal;
    b) providing a gain section including a gain medium having a superstructure grating, said superstructure grating forming a plurality of cavities that are distributed in said gain medium such that different resonant wavelengths resonate in respective ones of said cavities when the energy signal is applied to said gain section, **at least two of said cavities being separated from one another**; and
    c) applying the energy signal to said gain section to generate a multi-wavelength laser signal.

32. A multi-wavelength laser source comprising:
    a) a pump laser unit adapted for generating an energy signal;
    b) a gain section including a gain medium having a superstructure grating, said superstructure grating forming a plurality of cavities that are distributed in said gain medium such that different resonant wavelengths resonate in spatially separated portions of said gain medium respective ones of said cavities when the energy signal is applied to said gain section, **at least two of said cavities being separated from one another**, the pump laser unit being adapted for applying the energy signal to said gain section such as to cause a multi-wavelength laser signal to be generated; and
    c) an output for emitting the multi-wavelength laser signal.

It is respectfully submitted that MacCormack neither teaches nor suggests a multi-wavelength laser source comprising a gain section that includes a gain medium having a superstructure grating forming a plurality of cavities that are distributed in the gain medium such that different resonant wavelengths resonate in respective ones of the cavities when an energy signal is applied to the gain section, where at least two of the cavities are **separated** from one another.

Specifically, MacCormack describes an optical source comprising a gain medium provided with gratings that form a plurality of cavities. However, in MacCormack, *all* cavities of the gain medium are *overlapping* (see Figures 1 to 5, 11 and 12 and their description (e.g., col. 5, lines 31 to 49) where all cavities, which are formed by pairs of gratings (e.g., 12-12, 14-14, 16-16, etc.), are overlapping). In other words, in MacCormack, no two cavities of the gain medium are **separated** from one another.

During the Examiner Interview, the Examiner argued that "separated" could mean "partially overlapping" in view of Figure 8B of the present patent application. With all due respect, the Applicants strongly disagree. Firstly, "separated" has a plain and ordinary meaning that clearly does not mean "partially overlapping". The Applicants have not come across any dictionary that supports the Examiner's interpretation. Secondly, the Examiner's argument regarding Figure 8B is not understood. It is quite clear that in the example embodiment of Figure 8B, at least two of the cavities are separated from one another as claimed. For instance, in this example embodiment, the cavities in which resonate wavelengths λ_1, λ_3, λ_5, λ_7 and λ_9 are indeed all separated from one another. The Examiner should be alerted to the fact that while Figure 8B supports the claim, it does not attempt to define the term "separated" which has a plain and ordinary meaning. For these reasons, it is respectfully submitted that the Examiner's interpretation of "separated" as meaning "partially overlapping" is unfounded and invalid.

In view of the foregoing, it is apparent that MacCormack does not teach or suggest a gain medium having a superstructure grating forming a plurality of cavities where at least two of the cavities are **separated** from one another. Accordingly, it is respectfully submitted that MacCormack does not teach or suggest at least one element of claims 1, 22 and 32 and, thus, does not anticipate these claims. The Examiner is therefore respectfully requested to withdraw the rejection of claims 1, 22 and 32, which are believed to be in condition for allowance.

Dependent claims 2, 3, 15, 17 to 19, 28 to 31, 33, 34, 37 to 39, 43, 44, 48 and 49

Each of claims 2, 3, 15, 17 to 19, 28 to 31, 33, 34, 37 to 39, 43, 44, 48 and 49 depends on one of claims 1, 22 and 32 and thus incorporates by reference all of the elements of that base claim. Thus, for the same reasons as those set forth above in respect of claims 1, 22 and 32, the Examiner is respectfully requested to withdrawn the rejection of claims 2, 3, 15, 17 to 19, 28 to 31, 33, 34, 37 to 39, 43, 44, 48 and 49, which are believed to be in condition for allowance.

4. Rejection of Claims under 35 USC 103

On pages 5 to 7 of the Office Action, the Examiner rejected claims 6 to 9, 20 and 21 under 35 USC 103(a) as being unpatentable over MacCormack in view of U.S. Patent Application Publication 2004/0037505 by Morin (hereinafter referred to as "Morin"). The Examiner also rejected claims 40, 45 and 50 under 35 USC 103(a) as being unpatentable over MacCormack. The Examiner also rejected claims 41, 42, 46, 47, 51 and 52 under 35 USC 103(a) as being unpatentable over MacCormack in view of U.S. Patent 5,844,927 to Kringlebotn.

Firstly, the Examiner's rejection of claims 41, 42, 46, 47, 51 and 52 is moot in view of cancellation of these claims.

Secondly, each of claims 40, 45 and 50 depends on one of claims 1, 22 and 32 and thus incorporates by reference all of the elements of that base claim. Thus, for the same reasons as those set forth above in respect of claims 1, 22 and 32, it is respectfully submitted that at least one element of claims 40, 45 and 50 (by virtue of their dependency on one of claims 1, 22 and 32) is neither taught nor suggested by MacCormack. Therefore, the Applicants respectfully submit that at least one criterion required for establishing a *prima facie* case of obviousness in accordance with MPEP 706.02(j)[1] is not satisfied. Accordingly, the Examiner is respectfully requested to withdraw the rejection of claims 40, 45 and 50, which are believed to be in condition for allowance.

Thirdly, as discussed below, it is respectfully submitted that claims 6 to 9, 20 and 21 are in condition for allowance.

Specifically, each of claims 6 to 9, 20 and 21 depends on claim 1 and thus incorporates by reference all of the elements of claim 1, including those shown above to be absent from MacCormack, namely, a multi-wavelength laser source comprising a gain section that

[1] For the Examiner to establish a *prima facie* case of obviousness, three criteria must be considered: (1) there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine the reference teachings, (2) there must be a reasonable expectation of success, and (3) the prior art references must teach or suggest all of the claim limitations. MPEP §§ 706.02(j), 2142 (8th ed.).

includes a gain medium having a superstructure grating forming a plurality of cavities that are distributed in the gain medium such that different resonant wavelengths resonate in respective ones of the cavities when an energy signal is applied to the gain section, where at least two of the cavities are **separated** from one another.

It is respectfully submitted that these elements are also absent from Morin.

Indeed, Morin discloses and claims a certain type of Fiber Bragg Grating Gires-Tournois interferometer for *chromatic dispersion compensation* in a passive optical fiber, i.e., in a fiber without optical gain (parag. 16, 18 to 21, 37 and 38). That is, Morin's passive optical fiber does **not** form a gain medium and is **not** used for *laser generation*[2].

Furthermore, while Morin's interferometer can be provided with gratings that define multiple cavities, the absence of a gain medium makes it impossible to effect any type of distribution of cavities in a gain medium, let alone one where at least two of the cavities are **separated** from one another.

Accordingly, it is respectfully submitted that at least one element of claims 6 to 9, 20 and 21 (by virtue of their dependency on claim 1) is neither taught nor suggested by MacCormack and Morin, whether taken separately or in combination. Therefore, the Applicants respectfully submit that at least one criterion required for establishing a *prima facie* case of obviousness in accordance with MPEP 706.02(j) is not satisfied. Accordingly, the Examiner is respectfully requested to withdraw the rejection of claims 6 to 9, 20 and 21, which are believed to be in condition for allowance.

[2] Notwithstanding that Morin's interferometer is specifically designed for *chromatic dispersion compensation* and is in no way intended to be used for *laser generation*, Morin's interferometer actually renders laser action impossible. Indeed, Morin's interferometer requires a strong back reflector combined with one or more much weaker input reflectors to achieve its desired dispersion compensation effect (parag. 37, lines 15 to 30 and parag. 38, lines 16 to 21). These one or more weaker input reflectors render laser action impossible. Thus, not only is Morin clearly not concerned with laser generation, Morin actually *teaches away* from application of its grating structure for laser generation purposes. As such, combining Morin with any reference (including MacCormack) cannot support a contention of obviousness.

CONCLUSION

Claims 1 to 3, 6 to 9, 15, 17 to 22, 28 to 34, 37 to 40, 43 to 45, 48 to 50 and 53 to 55 are believed to be in condition for allowance. Favorable reconsideration is requested. In addition, rejoinder of withdrawn claims 4, 5, 10 to 14, 35 and 36, which are also believed to be in condition for allowance, is respectfully requested upon allowance of the generic claims presently in the application. Early allowance of the application is earnestly solicited.

If the claims of the application are not considered to be in full condition for allowance, for any reason, the Applicants respectfully request the constructive assistance and suggestions of the Examiner in drafting one or more acceptable claims pursuant to MPEP 707.07(j) or in making constructive suggestions pursuant to MPEP 706.03 so that the application can be placed in allowable condition as soon as possible and without the need for further proceedings.

Respectfully submitted,

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